

T/Mon EXP

USER MANUAL



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Revision History

September 4, 2009	Added section on Site Dialer functionality. (D-OC-UM099.04100)
August 20, 2009	Added section on SQL Agent. (D-OC-UM098.20100)
July 16, 2009	Revisions to Specs (D-OC-UM097.16100)
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March 18, 2009	Initial release of T/Mon EXP User Manual (D-OC-UM093.18100)

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1 T/Mon EXP Overview



Figure 1a - Expand the capabilities of your T/Mon EXP and IAM Platforms

The T/Mon EXP is the latest hardware accessory designed to expand the overall functionality and monitoring capacity of your T/Mon NOC or IAM alarm master. Customize your T/Mon EXP by loading the software modules you need for your network. This ultra-fast, gigabit LAN platform ensures fast connectivity with capacity to add future functionality.

The T/Mon EXP is a 3 RU, rack mounted, -48V dual feed, Quad Core Pentium computer that will be responsible for: expanding the TCP/UDP ports on the IAM and/or T/Mon NOC system with the ASCII Gateway Agent or SQL Agent over a LAN connection. The ASCII Gateway and SQL Agent retrieve the configuration from T/Mon, so no actual setup on the T/Mon EXP is required.

New for the EXP is the voice notification application via the Site Dialer for T/Mon NOC. See Fig. 1c. In this application, your incoming alarms from T/Mon can be converted to voice notifications "on the fly" to your cell or home phone.

- Gigabit LAN enabled - Fast connectivity
- Dual 160GB SATA hard drives in a RAID 1 config for data protection
- Reliable, Unix-based platform
- Compact, rack-mountable, 3 RU design
- Configuration via T/Mon NOC or IAM master station
- Software modules to add future applications
- 2-year hardware warranty for peace of mind
- 30 day no-risk, money back guarantee

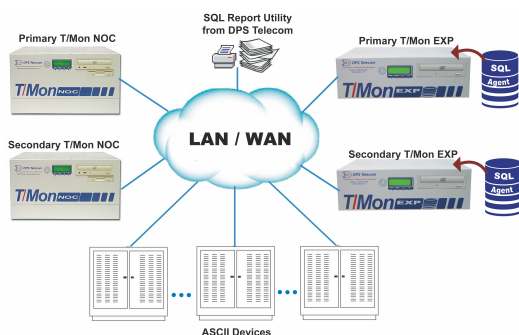


Figure 1b - Topology drawing with ASCII Gateway module and SQL Agent.

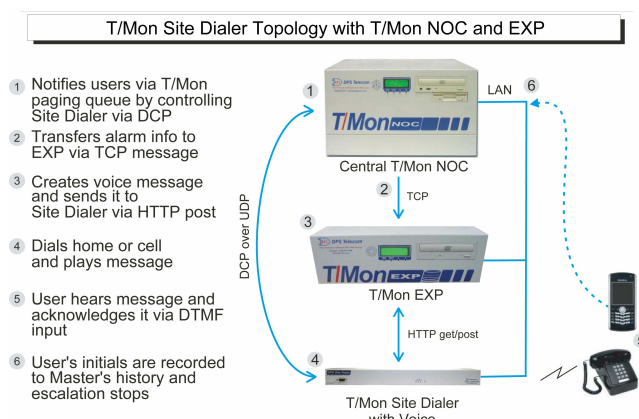


Figure 1c - Topology drawing with Site Dialer functionality.

2 Shipping List

While unpacking the T/Mon EXP, please make sure that all of the following items are included. If some parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **(800) 622-3314**.



T/Mon EXP
D-PK-TMEXP



T/Mon EXP User Manual
D-OC-UM099.04100



Ethernet Cable - 14 ft.
D-PR-923-10A-14



T/Access Cable (DB9 to DB9)
D-PR-1053-10A-06



23" Rack Ears



19" Rack Ears



4-Pin Barrier
1-820-00814-02



2-Pin Barrier
1-820-00862-02



Standard Rack Screws
1-000-12500-06



Metric Rack Screws
1-000-80750-03



5 Amp Fuse

3 Specifications

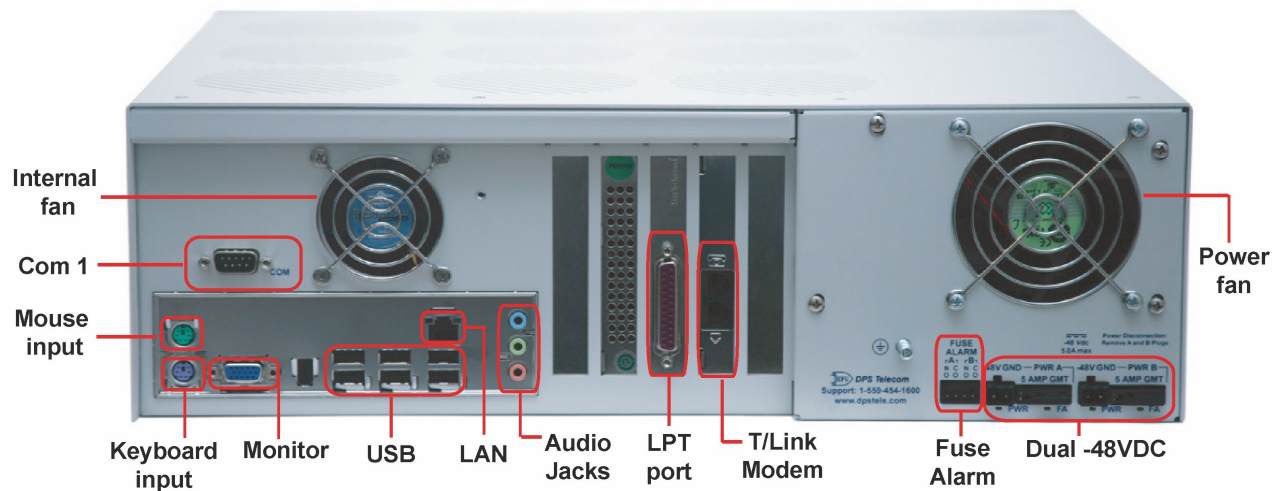


Figure 3a - Back Panel

Size	3 RU
Dimensions:	5.22"H x 17"W x 14.5"D (13.3cm x 43.2cm x 36.8cm)
Weight:	20 lbs (9.07 Kg)
Applications	ASCII Gateway Module SQL History Module T/Mon Site Dialer Module (text-to-speech engine)
Processor	3.0 GHz Quad Core/800 MHz FSB
RAM	2 GB
LAN Interface	Gigabit
Hard Drive	Dual 160GB SATA drives in RAID 1 Configuration
Power Input	Dual -48VDC power feeds, fused separately <i>110VAC option available</i>
Current Draw:	3A @ 48VDC
Configuration	Via T/Mon NOC or IAM
Visual Display	Front panel LCD
Removable Storage	CD/R Drive
Interfaces	Console modem port, keyboard port, mouse port, USB ports, printer parallel ports, Com 1 port, VGA port, LAN interface
Mounting	19" or 23" rack
Fans	2-1 internal and 1 power
Operating Temperature	41° to 95° F (5° to 35° C)
Operating Humidity	0% to 90% (non-condensing)
Hardware Warranty	2 years

4 Hardware Setup

4.1 Mounting

Slide Rack Mounting - Optional Accessory



Figure 4a - Slide Rack Mounting

The Slide Rack enables the T/Mon EXP to easily slide out of its rack position for installation and service access. Your T/Mon EXP shipped with the Slide Rack already mounted to the unit and with the specified rack ears in the correct position for installation. Installing the T/Mon EXP with Slide Rack takes three steps:

1. Removing the Slide Rack from the T/Mon EXP
2. Mounting the Slide Rack on the equipment rack
3. Mounting the T/Mon EXP on the Slide Rack.

Note: The T/Mon EXP with Slide Rack occupies 4 rack units of space. At least 1 rack unit (1 3/4") should be allowed above the T/Mon EXP for ventilation. The Slide Rack extends nearly 13" — be sure to provide adequate service loop in the connecting cables to allow the T/Mon EXP to extend to this distance. After installation and testing of the T/Mon EXP is completed, the slide lock screws should be installed in the Slide Rack to prevent accidental migration of the unit into the aisle space. The slide lock screws go into the equipment rack when flush mounted.

Removing the Slide Rack From T/Mon EXP

Removing the Slide Rack makes mounting the T/Mon EXP an easy, one person, job. To remove the Slide Rack, follow these steps:

1. Make sure the T/Mon EXP is off and disconnected from all network interfaces and power supplies.
2. Carefully place the T/Mon EXP upside down on a clean, even surface. (This will not damage the unit.)
3. The T/Mon EXP is secured to the Slide Rack by two screws — see Figure 4a. Remove these screws and save them for reattaching the unit.
4. Gently lift the Slide Rack to remove it from the T/Mon EXP.

Mounting the Slide Rack - Optional

The Slide Rack is light and can easily be mounted to the equipment rack by one person. The rack ears specified with your order (either 19" or 23") are already attached to the Slide Rack. (If the incorrect ears have been attached to the Slide Rack, look for the extra ears included with your shipment.) To mount the Slide Rack to the equipment rack, follow these steps:

1. Supporting the Slide Rack with one hand, align the mounting holes in the rack ears with the rack rails.
2. Secure both brackets with the rack screws provided in the hardware bag.



Figure 4b - Slide Rack Mounting

Mounting the T/Mon EXP on the Slide Rack

To mount the T/Mon EXP on the Slide Rack, follow these steps:

1. Extend the Slide Rack.
2. Lift the T/Mon EXP and place it on the Slide Rack.



Figure 4c - Place the T/Mon EXP on the extended Slide Rack

3. Align the notches on the bottom of the T/Mon EXP with the mounting tabs on the Slide Rack — see Figure 4a. There is a tab on either side of the Slide Rack, approximately 2" from the front of the Rack. Gently place the T/Mon EXP onto the mounting tabs.

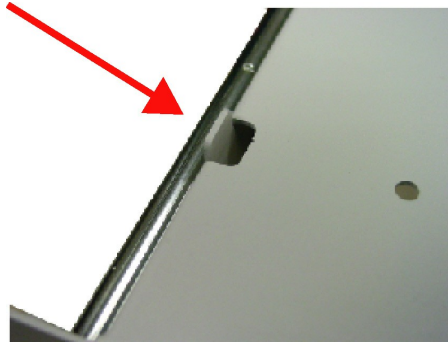


Figure 4d - There is a mounting tab on either side of the Slide Rack approximately 2" from the front of the Slide Rack

4. From below the T/Mon EXP, insert the two screws that secure the T/Mon EXP to the Slide Rack.
5. Slide the Slide Rack back into place.



Figure 4e - Secure T/Mon EXP to Slide Rack

Rack Mounting

If you did not order the Slide Rack, your T/Mon EXP is equipped with rack ears that can be positioned for either 5" projection or flush mounting in either 23" or 19" racks. To mount the T/Mon EXP directly to the equipment rack, follow these steps:

1. Determine which mounting configuration is required. The T/Mon EXP is supplied with the brackets in the 19"/5" projections position.
2. If a different configuration is required, remove the 8-32 screws, re-orient the brackets and re-install the screws.
3. Place the T/Mon EXP in the rack and align the mounting holes in the brackets with the holes in the rack rails. Secure each bracket with two 12-24 screws (provided in hardware bag).

4.2 Power



Figure 4f - Connecting -48V power to the T/Mon EXP

Connecting dual -48 VDC power

These instructions apply only to T/Mon NOC models with dual -48 VDC power connections. To connect the T/Mon NOC to a power supply, follow these steps:

1. Remove T/Mon EXP fuses and appropriate fuses from power source.
2. Remove the power connector plugs from T/Mon EXP.
3. Connect a -48 VDC line to the -48 volt terminal and a battery ground to the GND terminal of each power connector plug. Seat the barrier screws firmly, but be careful not to nick the bare wire.

4.3 LAN Connection

Connect the T/Mon EXP to your LAN by inserting a standard Ethernet cable into the 10/100/1000 BaseT port located on the rear of the unit.

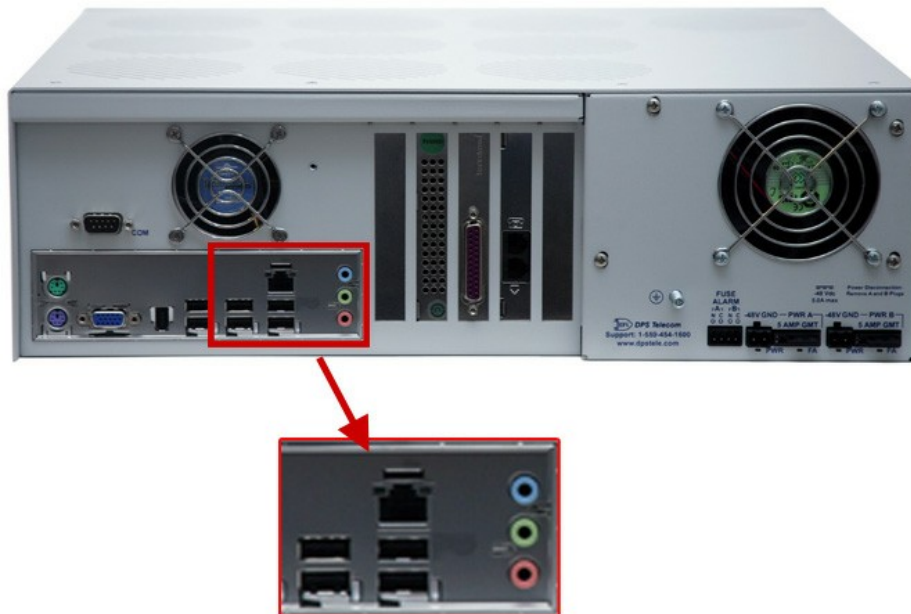


Figure 4g - Connecting the T/Mon EXP to LAN

5 Initial Setup

There are 2 methods of assigning an IP address to the T/Mon EXP: Via a **crossover or hub connection**, then accessing Webmin (preferred method) OR using a **PPP connection via T/Link port** (alternative method.)

5.1 Default Users

Please note that passwords **are** case-sensitive.

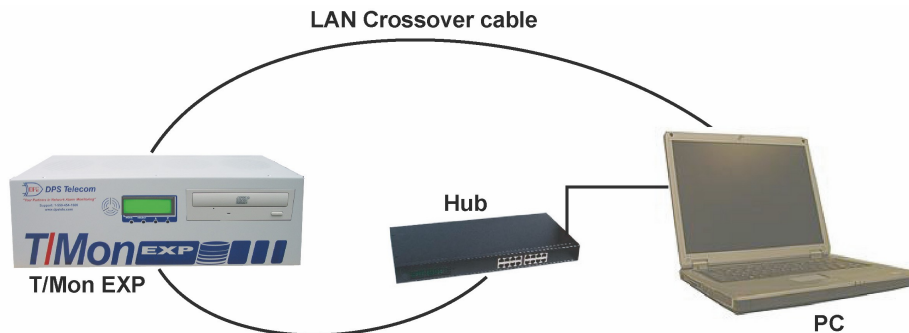
Table I - Your T/Mon EXP ships with the following default users already created

Username	Password	-----Access-----			
		SSH	Webmin	SQL*	Root
dps	dpstelecom			X	
Admin	dp5WMtele		X		

* if installed

5.2 Connecting to the T/Mon EXP - Preferred Method

1. The preferred method of connecting to the T/Mon EXP required a LAN crossover cable or a hub/switch, in the configuration shown below. *Note: Most newer PCs will detect when a LAN crossover is needed and perform this function automatically without the crossover cable.*



2. Change the computer's IP address to 192.168.1.1 and the subnet mask to 255.255.0.0
3. **Proceed to section "Accessing Webmin."**

5.3 Connecting to the T/Mon EXP via PPP Direct Serial - Alternative Method

1. Setup the serial com port by opening **Control Panel** and clicking on the **Phone and Modem Options** icon if using Classic View. If not using Classic View, click on **Printers and Other Hardware**, then **Phone and Modem Options**.

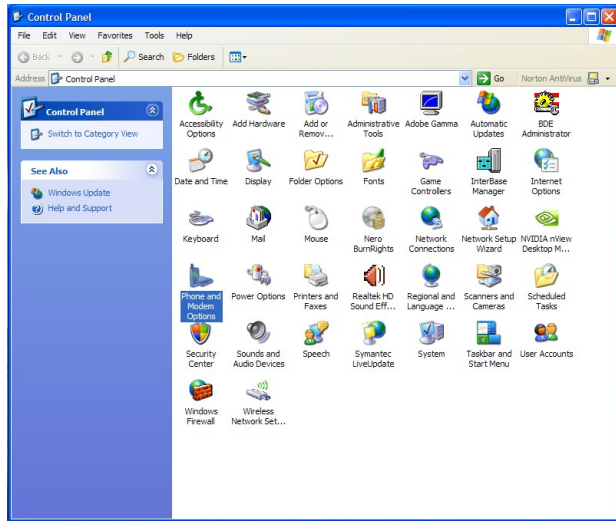


Figure 5a

2. Click on the **Modems** tab and click on the **Add** button.

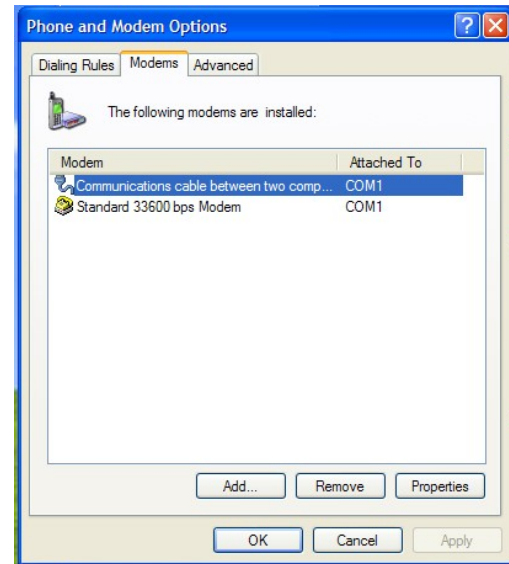


Figure 5b

3. Check **"Don't detect my modem; I will select it from a list"**. Then click on **Next**.



Figure 5c

4. Select **"Communications cable between two computers"** and click on **Next**.

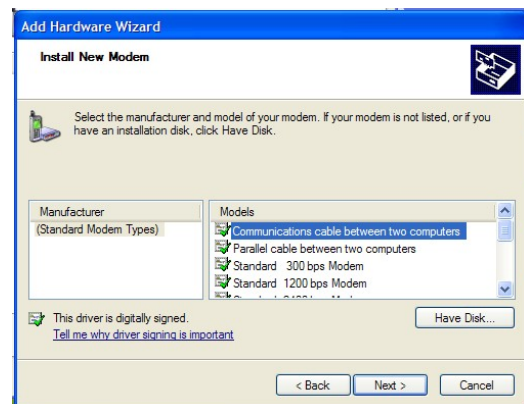


Figure 5d

5. Select the serial COM port on your PC. This will install the drivers for a direct connection using the serial port.



Figure 5e

7. Click on **"Create a new connection"** on the left side of the window.

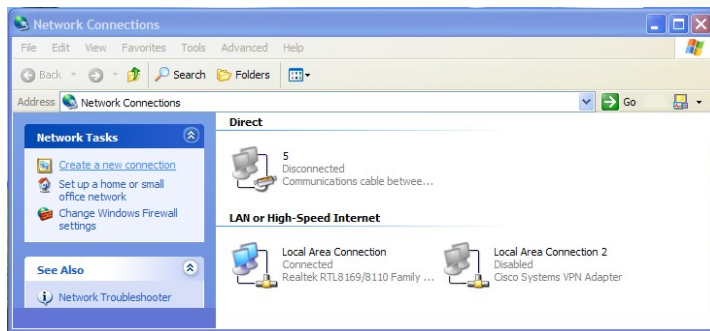


Figure 5g

9. Select **"Connect directly to another computer"** and click on **Next**.



Figure 5i

6. Create a new connection by going to **Network Connections**. On **Control Panel** click on **Network and Internet Connections** then **Network Connections**. If using **Classic View**, click on **Network Connections**.

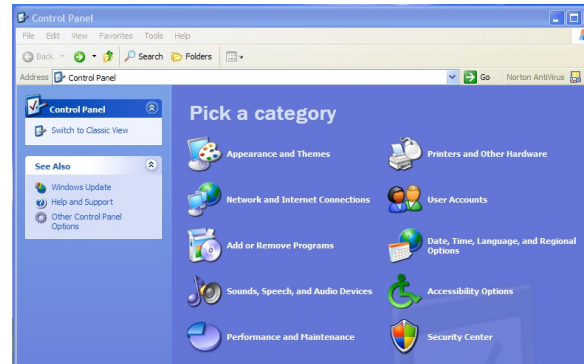


Figure 5f

8. Select **"Set up an advanced connection"** and click on **Next**.



Figure 5h

10. Select **Guest** and click on **Next**.

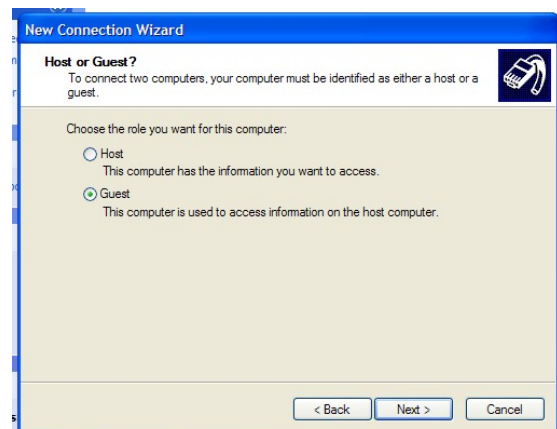


Figure 5j

11. Enter a **description** and click **Next**.

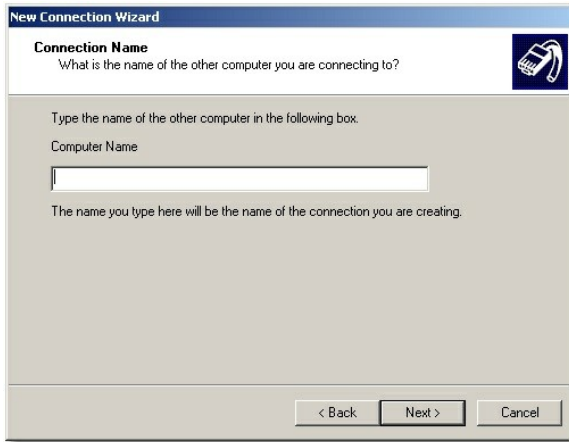


Figure 5k

13. Click on the **Properties** button the new window.



Figure 5m

15. Set Maximum speed to **19200** and check "**Show terminal window**". Click **OK** to go back to the Connect window.

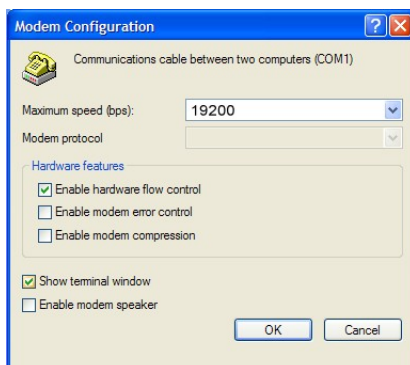


Figure 5o

12. Select the device that we just created. It should be labeled "**Communications cable between two computers**". Click **Next**, then **Finish**.

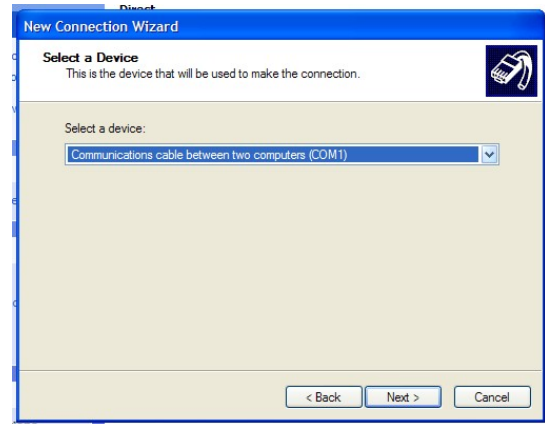


Figure 5l

14. Under the **General** tab. Click on **Configure**.

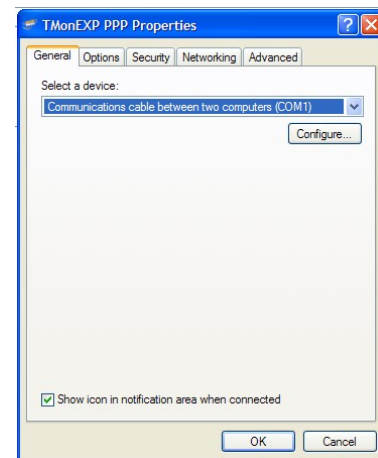


Figure 5n

16. Click on **Connect**. A Pre-Dial Terminal Screen will pop up. Enter "**ppp**" and press **Enter** when prompted for a login. Then press the **Continue** button.

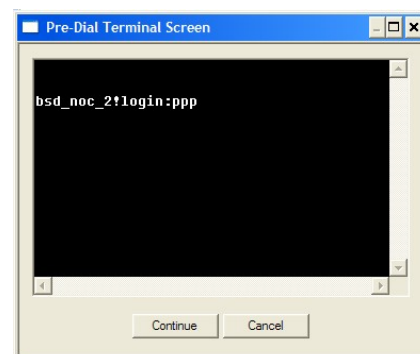


Figure 5p

17. When connected, you should see an icon in your system tray for the new connection. **Right-click** this icon and go to **Status**. Click on **Details** to view the IP of the TMon EXP.

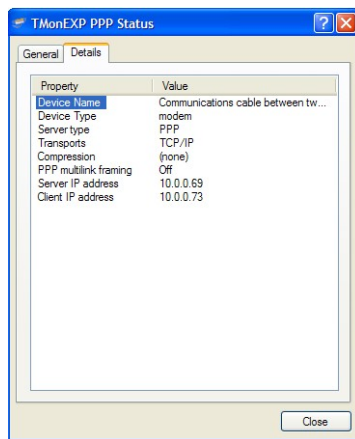



Figure 5q

18. You should now be able to SSH into the unit, and access Webmin by using this IP address: <https://10.0.0.69:10000>

Proceed to "Accessing Webmin."

6 Accessing Webmin

1. Webmin can be accessed once the IP connection has been configured, or if connected directly to the unit via serial PPP.
2. Open your web browser and type in the T/Mon EXP's IP address. If you used the Preferred Method via a LAN crossover or hub, use this address: <https://192.168.1.100:10000>. If you setup the T/Mon EXP using PPP over serial, use this address: <https://10.0.0.69:10000>
3. Logon to Webmin. The default username is "Admin" and password is "dp5WMtele".



The image shows the 'Login to Webmin' web form. It has a blue header bar with the title 'Login to Webmin'. Below the header, it says 'You must enter a username and password to login to the Webmin server on 192.168.1.1'. There are two input fields: 'Username' with 'admin' entered, and 'Password' with masked characters '•••••'. Below the password field are 'Login' and 'Clear' buttons. At the bottom, there is a checkbox labeled 'Remember login permanently?' which is currently unchecked.

Figure 6a - Webmin logon screen

6.1 Changing the IP Address with Webmin

1. Start Webmin and login.
2. Expand **Networking** on the left side of the window.

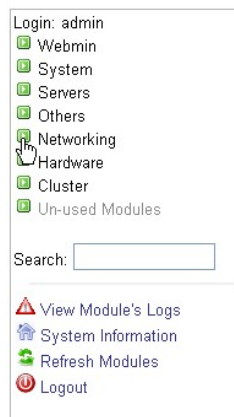


Figure 6b

3. Click on **Network Configuration**.

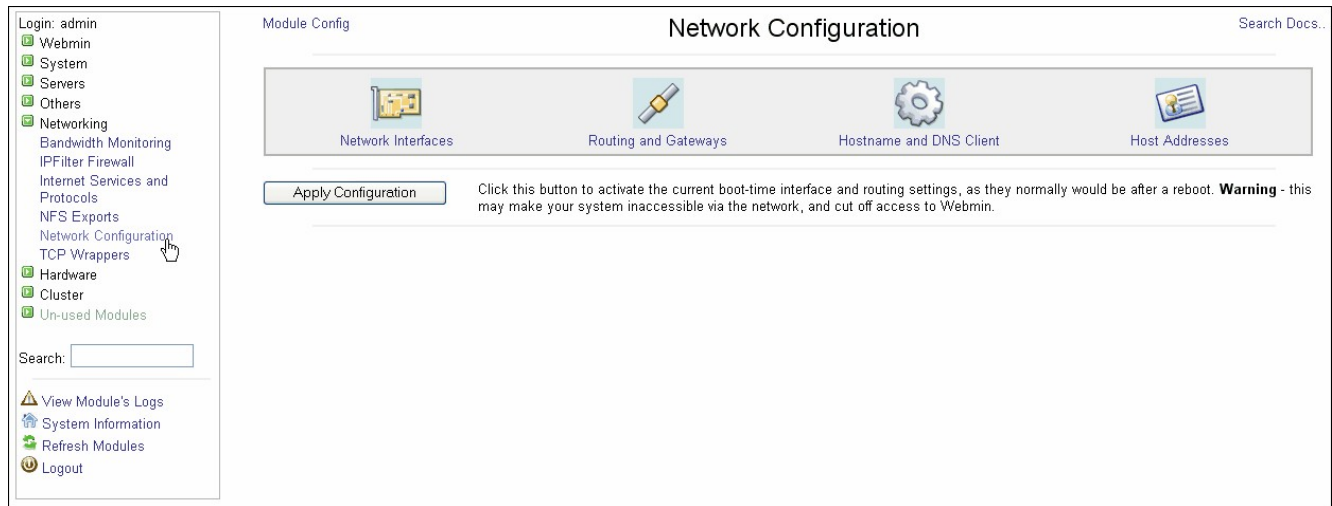


Figure 6c

4. Select **Network Interfaces**, then click on the "Interfaces Activated at Boot Time" tab.

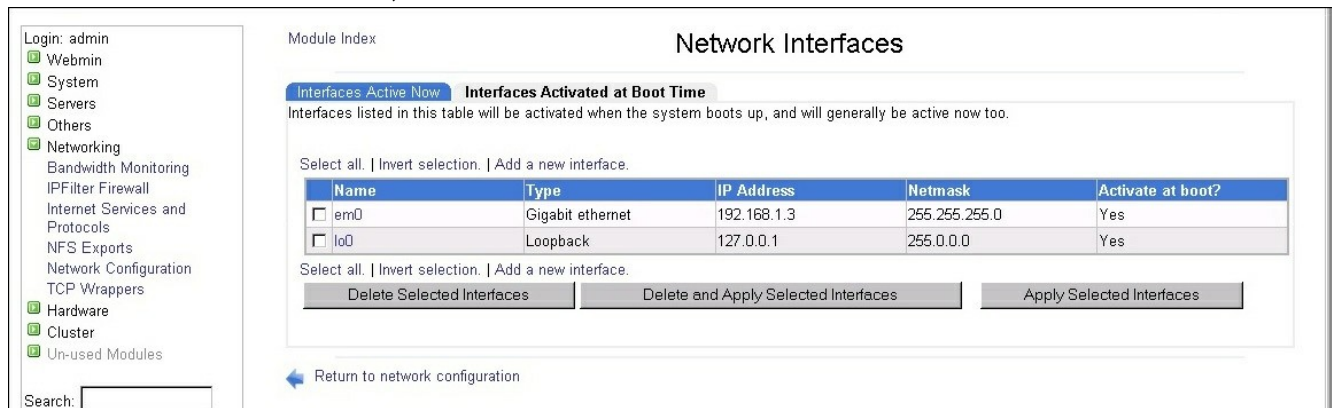


Figure 6d

5. Click on the **Ethernet** entry.

6. Modify the **IP Address and Mask** and click on **Save**.

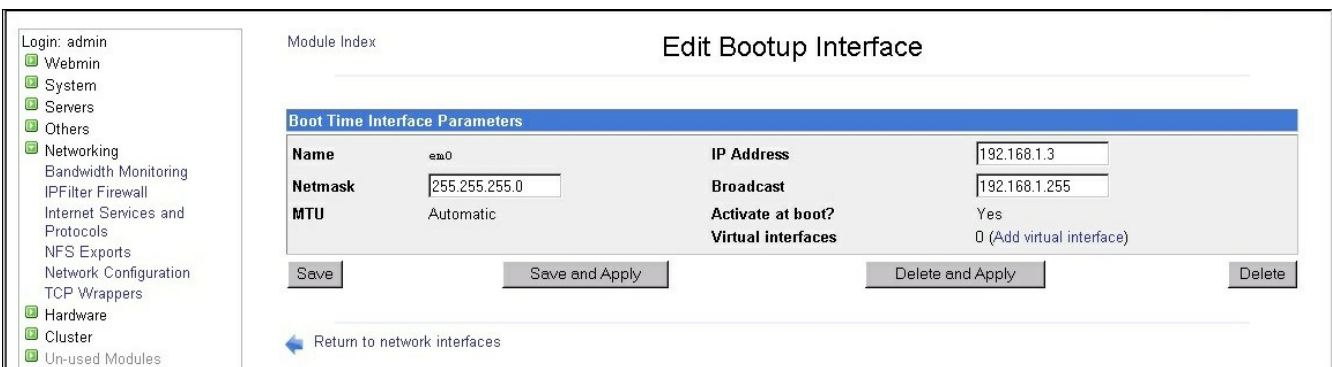


Figure 6e

7. Modify the gateway by going back to the Network Configuration screen and clicking on **Routing and Gateways**.

8. Modify the **IP in the default router** (your gateway) field and click on **Save**.

Module Index

Routing and Gateways

Boot time configuration

This section allows you to configure the routes that are activated when the system boots up, or when network settings are fully re-applied.

Routing configuration activated at boot time

Default router: ☐ None (or from DHCP) ☒ 126.10.220.254

Act as router?: ☐ Yes ☒ No

Start route discovery daemon?: ☐ Yes ☒ No

[Return to network configuration](#)

Figure 6f

9. Modify the **DNS server** by going back to the **Network Configuration** screen and click on **Hostname and DNS Client**.
10. Edit DNS servers then **save**.

Module Index

Hostname and DNS Client

DNS Client Options

Hostname:

Resolution order:

DNS servers:

Search domains: ☐ None ☐ Listed ..

[Return to network configuration](#)

Figure 6g

11. Reboot the system. Click **System -> Bootup and Shutdown**. Click **Reboot System**.

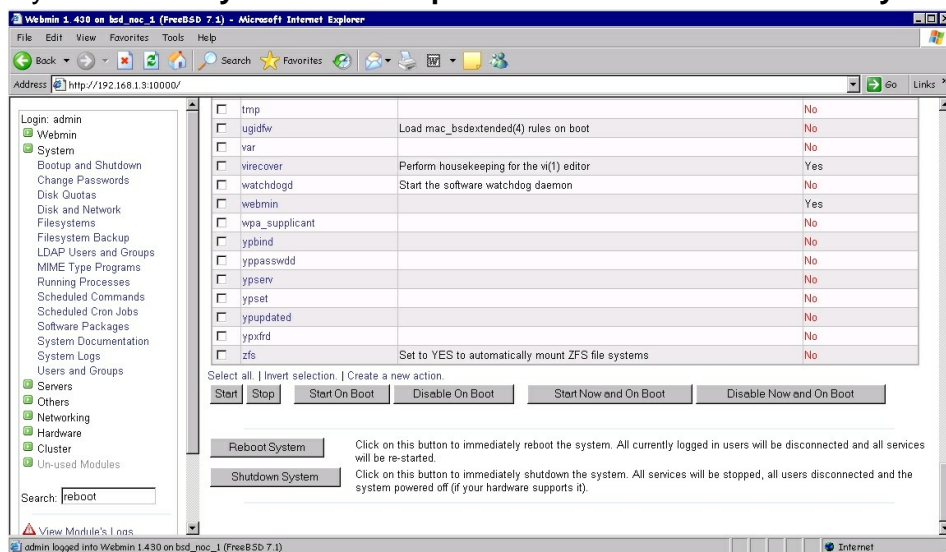


Figure 6h

6.2 Verify Running Processes

Once you've logged in to Webmin, you can verify if your EXP processes are running.

1. Click **System** on the left side of the screen to expand the menu.



Figure 6i

2. Click on **Running Processes**.
3. Scroll down and check the **Command Column** for the following processes:

Running Processes			
ID	Owner	Started	Command
0	root	Thu Aug 20 17:16:32 2009	[swapper]
1	root	Thu Aug 20 17:16:32 2009	/sbin/init --
563	root	Thu Aug 20 17:16:36 2009	/sbin/devd
620	root	Thu Aug 20 17:16:36 2009	/usr/sbin/syslogd -s
743	root	Thu Aug 20 17:16:38 2009	/usr/local/bin/perl /usr/local/lib/webmin/miniserv.pl /usr/local/etc/webmin/mini ...
920	root	Thu Aug 20 17:24:29 2009	/usr/local/lib/webmin/proc/index_tree.cgi (perl)
754	mysql	Thu Aug 20 17:16:38 2009	/bin/sh /usr/local/bin/mysqld_safe --defaults-extra-file=/var/db/mysql/my.cnf -- ... ← MySQL
798	mysql	Thu Aug 20 17:16:38 2009	/usr/local/libexec/mysqld --defaults-extra-file=/var/db/mysql/my.cnf --basedir=/ ...
766	root	Thu Aug 20 17:16:38 2009	/EXP_execDaemon ← Daemon
877	root	Thu Aug 20 17:16:41 2009	/EXP_execMgr
882	root	Thu Aug 20 17:16:41 2009	/exec/FrontPanelExe ← Front Panel

Figure 6j - These are the processes to look for if running the SQL Agent.

Running Processes			
Help.. Module Config			
Display : PID User Memory CPU Search Run..			
ID	Owner	Started	Command
0	root	Tue Mar 17 05:10:50 2009	[swapper]
1	root	Tue Mar 17 05:10:50 2009	/sbin/init --
562	root	Tue Mar 17 05:10:55 2009	/sbin/devd
619	root	Tue Mar 17 05:10:56 2009	/usr/sbin/syslogd -s
742	root	Tue Mar 17 05:11:03 2009	/usr/local/bin/perl /usr/local/lib/webmin/miniserv.pl /usr/local/etc/webmin/mini ...
2117	root	Tue Mar 17 08:57:02 2009	/usr/local/lib/webmin/proc/index_tree.cgi (perl)
755	mysql	Tue Mar 17 05:11:03 2009	/bin/sh /usr/local/bin/mysqld_safe --defaults-extra-file=/var/db/mysql/my.cnf -- ...
802	mysql	Tue Mar 17 05:11:03 2009	/usr/local/libexec/mysqld --defaults-extra-file=/var/db/mysql/my.cnf --basedir=/ ...
767	root	Tue Mar 17 05:11:03 2009	./EXP_execDaemon ← Daemon
888	root	Tue Mar 17 05:11:08 2009	./EXP_execMgr
893	root	Tue Mar 17 05:11:08 2009	./exec/FrontPanelExe ← Front Panel
896	root	Tue Mar 17 05:11:10 2009	./exec/ASCIIGateway -h192.168.1.1 -j499 ← ASCII
808	root	Tue Mar 17 05:11:04 2009	/usr/sbin/sshd

Figure 6k - These are the processes to look for when running the ASCII Gateway.

7 Optional Software Module: SQL Agent

The T/Mon SQL Agent job is designed to store history events from your T/Mon NOC into a high-speed SQL database hosted within the EXP. Once in the SQL database, these history events can be queried from any number of outside sources. Storing history events in SQL database will make the T/Mon history events widely accessible using tools like spreadsheet programs, database access tools, Visual Basic, and server-side web technology. You can also access historical alarm data using the T/Mon History Reporter software module (optional).

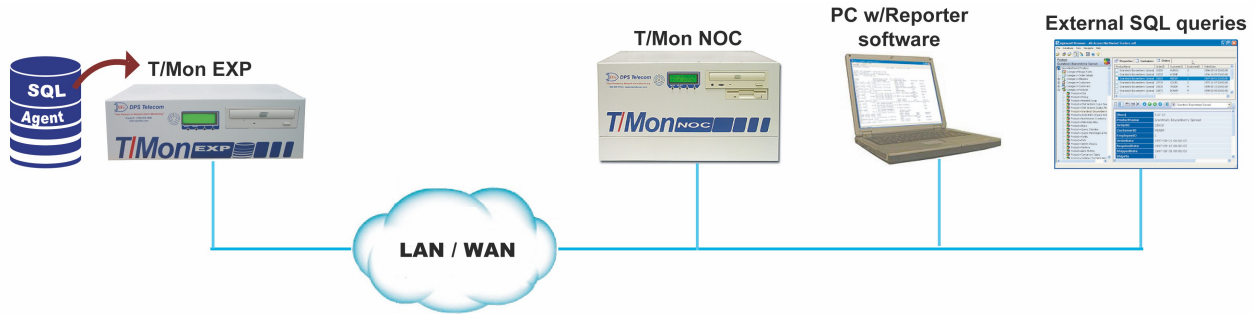


Figure 7a - Topology drawing of T/Mon EXP running the SQL Agent.

7.1 Remote Parameters Settings

Setup the TMon SQL job in the Remote Parameters menu. The job must be run on one of the virtual ports (30+). Use the default "Time out" value.

Refer to Table II for field definitions and Table III for function key descriptions.



Figure 7b - Configure settings for communicating with the T/Mon SQL Agent in the Parameters > TMonNet > TMon SQL sub-menu options

Table II - Remote Parameters screen defined for T/Mon SQL Agent.

Field	Description
Port Usage	TMon SQL
Description	Optional. Enter a description for this port job. [blank]
Time Out	Time the T/Mon will wait for a response before failing a poll. Valid entries are 200 to 9999 milliseconds. Use default time of 5000.

Table III - Key commands available in the Remote Parameters Screen.

Function Key	Description
F1	Devices. Define the T/Mon SQL Agent address, alarm displays, and alarm points that are on the current remote port.
F5	Toggle Suspend. Allows you to define but temporarily halt or suspend this function.
F6	Data Connection. (IP / virtual port connections only).
Alt-F5	Allows you to move the port.
F10-Esc	Exit.

7.2 Setup a Data Connection

Setup a TELNET-RAW data connection in the Ethernet TCP Port Definition screen by pressing F6 (Data Connection) from the Remote Parameters screen.

Setup the IP address to the address defined for the EXP and port 3300.

Ent	Type	IP/Hostname	TCP Port	Description	Job
1	UDP	-----	2001	ngs polling	49
2	TELNET-RAW	126.10.220.194	25	Mail Out	100
3	ICMP		5000	Ping 216t	51
4	TCP		21	ftp command	60
5	TELNET-RAW	1.1.1.1	20	ftp data	61
6	TELNET-RAW	1.1.1.1	2001	ngd polling	50
7	UDP		1500	ntp socket	52
8	TELNET-RAW	126.10.210.229	3300	SQL Socket	53
9	TCP		3000	GFX reporting module	54
10					
11					
12					
13					
14					
15					
16					
17					

Tab=Defaults, F1=GOTO, F3=BLANK, F8=Save, F10/Esc=Exit

Figure 7c

7.3 Define the Remote Device

Define the T/Mon SQL Agent remote device on address 1. Use the default "Description", "Site Name", and "Display" values.

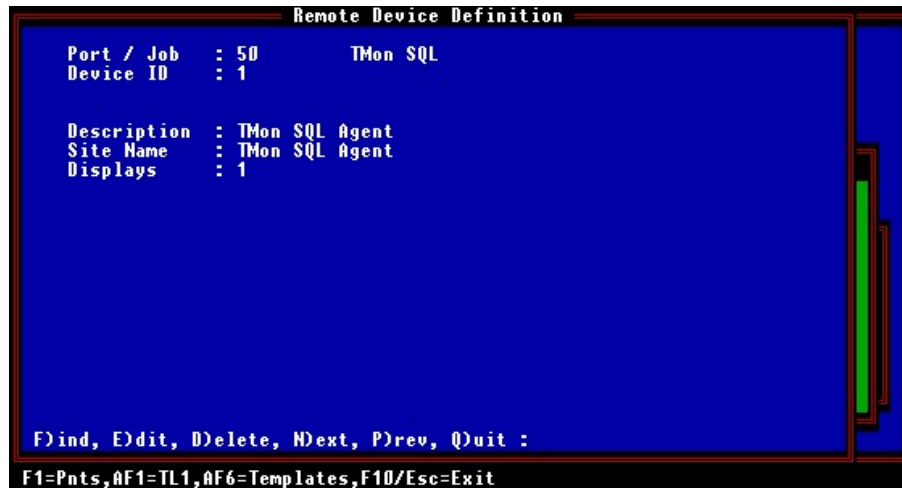


Figure 7d - Remote Device Definition screen defined for the T/Mon SQL Agent.

Table IV

Field	Description
Port	This port number.
Address	Address of this T/Mon SQL Agent. Use Address 1.
Description	Optional device description.
Site Name	Optional site name. This name will identify the site in the Monitor Mode and will be stamped on all events.
Displays	Number of displays to be reserved for collection. The default setting is 1, which should never be changed.

7.4 Internal Alarms

The following housekeeping alarms (aka internal alarms) are available for the T/Mon SQL Agent (address 1):

Cannot communicate with T/Mon SQL Agent: This alarm is set when the T/Mon SQL Agent fails to respond to the T/Mon's keep-alive request or the TMon is unable to establish a TCP network connection with the T/Mon SQL Agent. This alarm clears when the T/Mon SQL Agent successfully responds to the T/Mon's keep-alive request.

Cannot connect TCP with T/Mon SQL Agent: This alarm is set when the TMon is unable to establish a TCP network connection with the T/Mon SQL Agent. This alarm clears when the TMon is able to establish a TCP network connection with the T/Mon SQL Agent.

Excessive Errors - See Performance/Stats: This alarm is set when the TMon receives an excessive amount of error messages. The purpose of this alarm is to prompt the user to look at the Performance/Stats Window. This alarm clears when the Performance/Stats are reset (Alt-F2) or the TMon is re-initialized.

SQL Server Failed - see T/Mon SQL Agent: This alarm is set when the T/Mon SQL Agent loses communication with the SQL Server. If this happens you should check if the SQL Server is still running. This alarm clears when the T/Mon SQL Agent restores communication with the server.

7.5 Performance Stats in Monitor Mode

The following performance statistics are displayed in the Performance/Stats Window from Monitor Mode:

Sync Tot: Total number of history synchronization attempts.

Sync Ok: Total number of successfully completed history synchronizations.

Hst Evt Tot: Total number of history events sent.

Hst Evt Ok: Total number of successfully completed history events.

Time Out: Received a partial message.

No Response: Receive no message.

New CMD Err: Received an unknown command.

Msg Err: Received an invalid message.

Noise Chars: Invalid/unexpected characters.

Comm Err: Failed attempt to communicate with T/Mon SQL Agent (Keep-Alive or TCP connection).

7.6 Adding New Users to the SQL Server

The following instructions explain how to add new users to externally access the SQL database - used for running your own queries.

1. Log into **Webmin** - <https://IPAddress:10000>
2. Click **Servers > MySQL Database Server**.

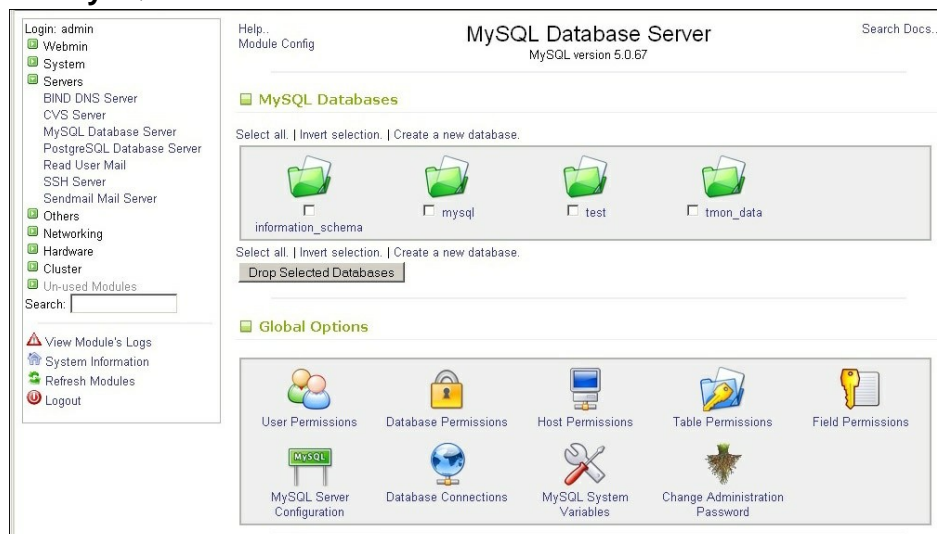


Figure 7e

3. Click **User Permissions**.

Module Index
Help..

User Permissions

Select all. | Invert selection. | Create new user.

User	Hosts	Encrypted password	Permissions
<input type="checkbox"/> Anonymous	localhost		None
<input type="checkbox"/> Anonymous	TMon_EXP		None
<input type="checkbox"/> root	localhost	*1CE446B196575D6BF56E70B84E12507C9742D05A	All
<input type="checkbox"/> root	TMon_EXP		All
<input type="checkbox"/> root	127.0.0.1		All

Select all. | Invert selection. | Create new user.
[Delete Selected](#)

The options below configure synchronization between Unix users created through Webmin and MySQL users.

☐ Add a new MySQL user when a Unix user is added, with permissions ...
☐ Update a MySQL user when the matching Unix user is modified.
☐ Delete a MySQL user when the matching Unix user is deleted.

Select table data
 Insert table data
 Update table data
 Delete table data
 Create tables

Create new users with hosts ☒ All hosts ☐ Specific host

[Save](#)

[Return to database list](#)

Figure 7f

4. Click **Create New User**. Enter the **Username**, **password**, and applicable **rights**.

Module Index
Help..

Create User

MySQL user details

Username Anonymous user ☐

Password None ☐ Set to..

Hosts ☒ Any ☐

Permissions

- Select table data
- Insert table data
- Update table data
- Delete table data
- Create tables
- Drop tables
- Reload grants
- Shutdown database
- Manage processes
- File operations

[Create](#)

[Return to user list](#) | [Return to database list](#)

Figure 7g

5. Click **Create** to finish.

7.7 Data Dictionary

Table V - (Tmon_history) Data Dictionary field descriptions

Field Name	Field Type	Description	ArrowNull	Key	Default
IPAddr	varchar(15)	IP Address of the TMon.		PRI	
IPPort	smallint(6)	IP Port of the TMon.		PRI	0
EventDateTime	datetime	The date and time which the TMon received the event.		PRI	0000-00-00 00:00:00
Port	smallint(6)	The port which the TMon received the event on.			0
Address	smallint(6)	The address which the TMon received the event on.			0
Display	smallint(6)	The display which the TMon received the event on.			0
Point	smallint(6)	The point which the TMon received the event on			0
EventCounter	tinyint(4) unsigned	Forms a unique identifier when used in conjunction with the EventDateTime.		PRI	0
AckDateTime	datetime	The date and time which the event was acknowledged. This field is only relevant if the "Initials" field is not blank.	YES		
Initials	varchar(10)	The initials of the user that acknowledged the alarm.	YES		
AlarmState	char(1)	The state of the event. • 'S'=Silenced • 'C'=Cleared • 'F'=Set	YES	MUL	
AlarmLevel	char(1)	The severity level of the event. • 'A'=Critical • 'B'=Major • 'C'=Minor • 'D'=Status	YES		
SubDevice	char(3)	Name of the sub-device which reported the event.	YES		
SiteName	varchar(40)	Name of the site which reported the event.	YES		
PointName	varchar(40)	Name of the point which corresponds to the event.	YES		

AuxPointName	varchar(40)	Auxiliary name of the point which corresponds to the event.	YES		
AlarmStatus	varchar(8)	Description of the current status of the event.	YES		
DispDesc	varchar(40)	Name of the display which the TMon received the event on.	YES		
	datetime	The date and time which the device that reported the event to the TMon received the event.	YES		
TStamp	timestamp	Current timestamp used by Microsoft Access.	YES		CURRENT_TIMESTAMP

Table VI - Data Dictionary key names and field names

Key Name	Field Name	Collation	Cardinality
PRIMARY	IPAddr	A	
PRIMARY	IPPort	A	
PRIMARY	EventDateTime	A	
PRIMARY	EventCounter	A	7776
INDEX ack	Initials	A	
INDEX ack	AckDateTime	A	
INDEX ack	EventDateTime	A	

Table VII - (file_list) List of dat files that can be transferred to the SQL database. Used to determine if the file has changed and needs to be retrieved.

Field Name	Field Type	Description	ArrowNul 1	Key	Default
IP Addr	Varchar(13)	IP Address of T/Mon where packet came from		Yes	
FileName	Varchar(15)	Name of T/Mon DAT file		Yes	
TimeStamp	Varchar(30)	Timestamp if T/Mon DAT file			
CRC	Varchar(30)	CRC of received DAT file			0

Table VIII - (tmon_history_windows) This table contains the windows associated with each alarm point from the tmon_history table.

Field Name	Field Type	Description	ArrowNul 1	Key	Default
IP Addr	Varchar(15)	IP Address of T/Mon where the packets came from.		Yes	
IPPort	Smallinit(6)	Port of the SQL connection on T/Mon.		Yes	0
EventDateTime	Datetime	Date and Time which the T/Mon received the event.		Yes	0000-00-00 00:00:00
Event Counter	Double(4)	Forms a unique identifier when used in conjunction with EventDateTime.		Yes	0
WindIDX	Smallinit(6)	Windows index. This ranges from 1 to 8. Each alarm point on T/Mon can be associated with up to 8 windows.		Yes	0
Window	Smallinit(Windows value. This is the window that an associated alarm would report to.			0

Table IX - (DAT_EMWIN) This table contains data from EMWIN.dat on T/Mon

Field Name	Field Type	Description	ArrowNul 1	Key	Default
WindIdx	Smallinit(6)	Tmon window index		Yes	0
WinName	Varchar(15)	Window name	Yes		
WinDesc	Varchar(41)	Window description	Yes		

8 Optional Software Module: ASCII Gateway

The T/Mon EXP is the newest, fastest way to increase the ASCII capabilities of your T/MonNOC or IAM. The T/Mon EXP expands the number of ASCII IP elements when combined with the ASCII Gateway module. Use the T/Mon EXP to maximize port space by routing more TCP/IP ports to a single T/Mon port.

[The ASCII Gateway Agent is an application specifically designed to work with the T/Mon EXP. After being loaded onto the T/Mon EXP, the application will multiplex multiple ASCII/IP sessions to a single T/Mon IP port, allowing the T/Mon EXP to monitor more ASCII devices with its port resources. This software is intended to manage traffic for devices that have lower bandwidth/output rates. Higher bandwidth devices should report directly to T/Mon NOC to save bandwidth. Please note that the T/Mon software version must be 6.3 (or later) loaded with either an ASCII or Auto-databasing ASCII module.]

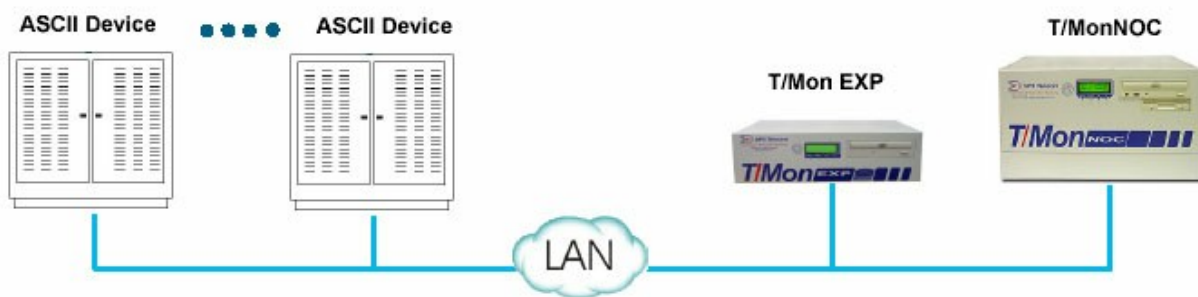


Figure 8a

Setting Up T/Mon for Use with T/Mon EXP ASCII Gateway

8.1 Step 1: Define an ASCII Gateway Job

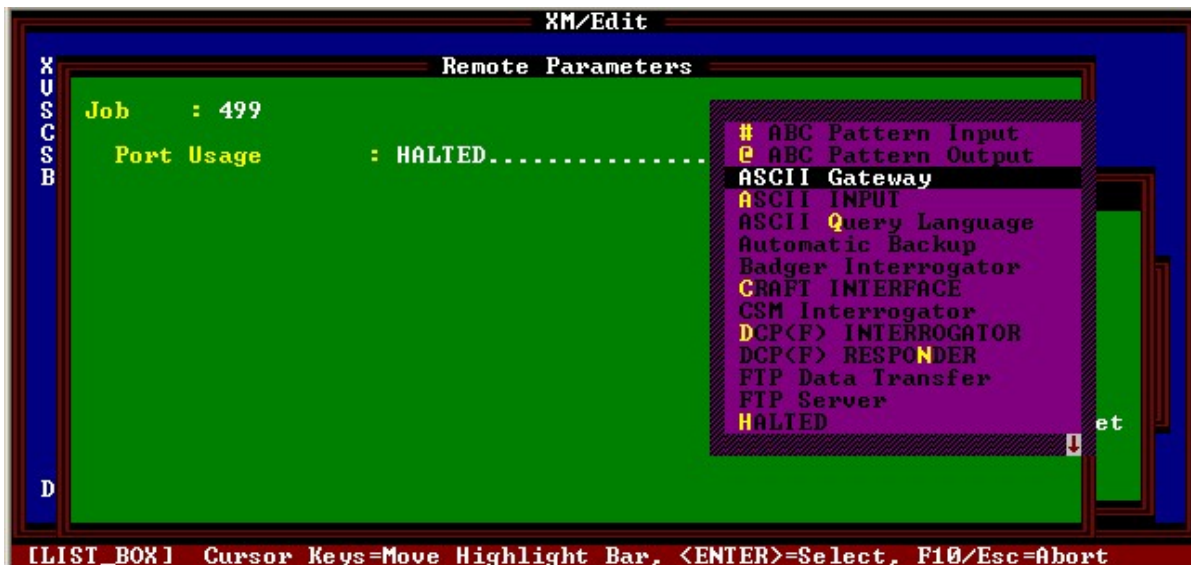


Figure 8b - From these port usage choices, select ASCII Gateway.

1. From the **Master Main Menu**, go to **Parameters 1 Remote Ports**. Find an available job **above 50** and press **E** for Edit. In this example we will use Job 499.
2. Press tab to see **Port Usage** choices and scroll down to select **ASCII Gateway**. Press **Enter**.
3. Enter the **description** (optional) and keep the timeout value of **5000** unless instructed otherwise.

4. Enter the **Primary Interval** value. This is only used when more than one device is defined. Enter the value in minutes for how often to check the status of the primary unit (device 1) if connection has been lost. If device 1 has been detected, it will automatically switch to device 1.
5. You will now see "**NO DATA CONNECTION**" blinking at the top of the screen.

8.2 Step 2: Define a Data Connection

1. Press **F6** for Data Connection, then **F1** for TCP Ports.
2. Scroll down to the next available connection.
3. Press **tab** and select **TELNET-RAW**.
4. Enter the **IP address** of the T/Mon EXP, as well as the **port number** for the ASCII Gateway (Default is 9002.)
5. Enter a description and then hit enter. When your cursor is at the beginning of the next line. Press **F8** to Save.
6. Go back to the ASCII Gateway Job and press **F6** to assign the data connection.
7. Press **tab** on the Data Connection Assignment screen. Select the data connection you've just made.

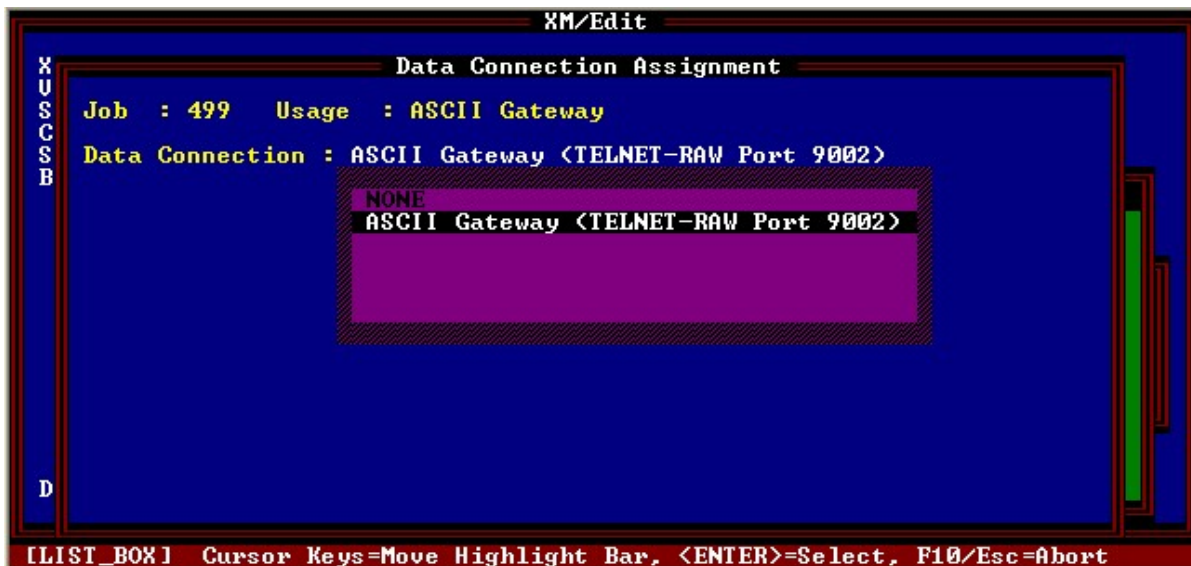


Figure 8c - Once the data connection is defined, select it from the Data Connection Assignment screen.

8. Press **Enter** to Save.

8.3 Step 3: Define the Primary ASCII Gateway Device

1. Press F1 from the Remote Parameters screen.

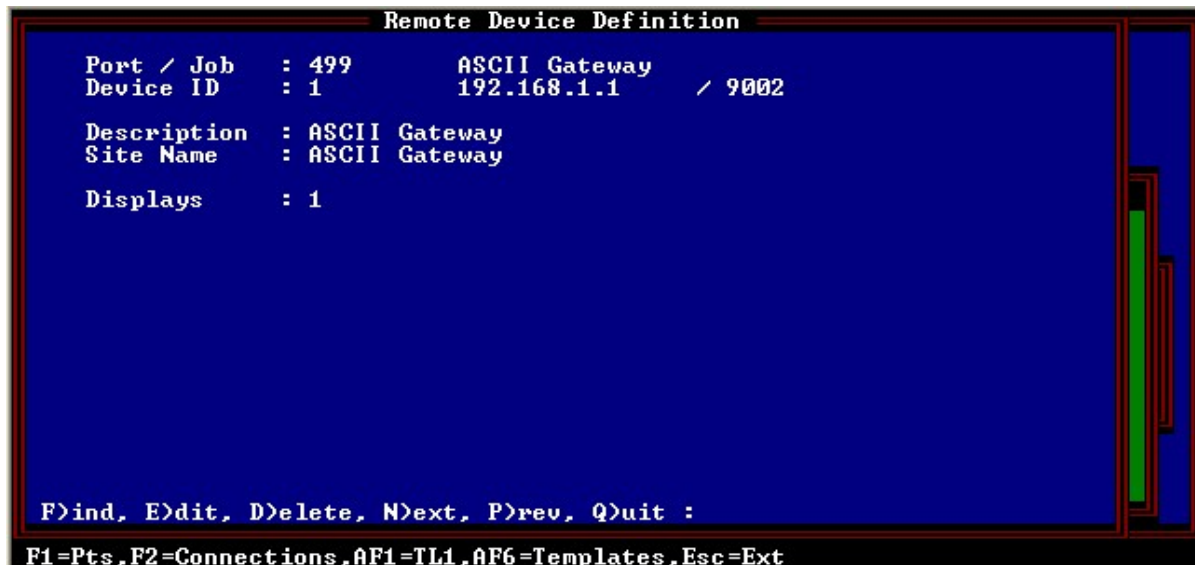


Figure 8d - Remote Device Definition screen.

2. Enter device 1 and press Y to create a new device.
3. Enter the IP address of the T/Mon EXP and the port of the ASCII Gateway (default is 9002.)
4. Select the default settings for the rest.

8.4 Step 4: Define a Secondary ASCII Gateway Device

If you have a secondary TMonEXP unit running another instance of the ASCII Gateway Agent and wish to database it as a backup, Press F1 from the Remote Parameter screen.

1. Press **F1** to find device 2. Enter **2** for device and press **Y** to create a new device.
2. Enter the **IP address of the T/Mon EXP** and the port of the ASCII Gateway (default is **9002**).
3. Select the default settings for the rest.
4. In the event that device 1 goes offline, device 2 will take over and monitor any devices assigned to it. If the Primary Interval value was set on the Remote Parameter screen, the status of device 1 will be checked periodically at this interval. If this was set to zero, the status of device 1 will not be checked and will only switch back if device 2 goes offline. If device 1 has been detected, it will automatically switch back to device

8.5 Step 5: Define the Subconnections

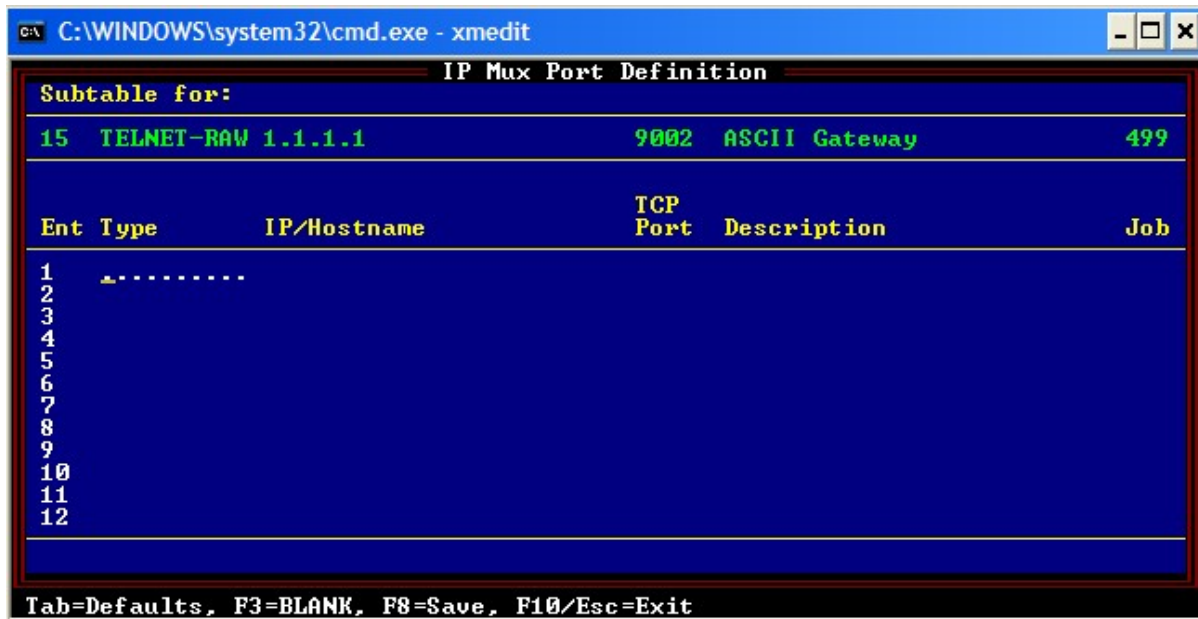


Figure 8e - IP Mux Port Definition screen.

1. On the Remote Device Definition screen, press F2 to define the mux connections that the T/Mon EXP ASCII Gateway will be handling.
2. This setup is the same as the Data Connection screen. These connections may be assigned to ASCII jobs to extend the number of connections that T/Mon can handle.



Hot Tip!

Use low-traffic ASCII devices since all data will be sent through a single port on T/Mon.

8.6 Step 6: Modify/Create ASCII Input Jobs for These Connections

1. Create an ASCII INPUT job and press F6 for Data Connection.
2. The connections that were created in Step 2 should now be available for use
3. These connections will have **AGD:** added to their descriptions.

9 Optional Software Module: Site Dialer for T/Mon NOC

Most of the configuration for this application is done on the T/Mon NOC. The EXP requires no extra configuration whatsoever. The Site Dialer only requires that the hardware be setup and that the unit has an IP address.

In order for the Site Dialer application to work, you'll need the following components:

- T/Mon NOC
- T/Mon EXP
- Site Dialer RTU for T/Mon NOC
- Site Dialer software module for the EXP

The following steps assume you already have the following configured in your T/Mon NOC. For help, see Section Three in the T/Mon manual.

- Pager Job
- Ethernet Job

9.1 Step 1: Setup the Voice Pager Job

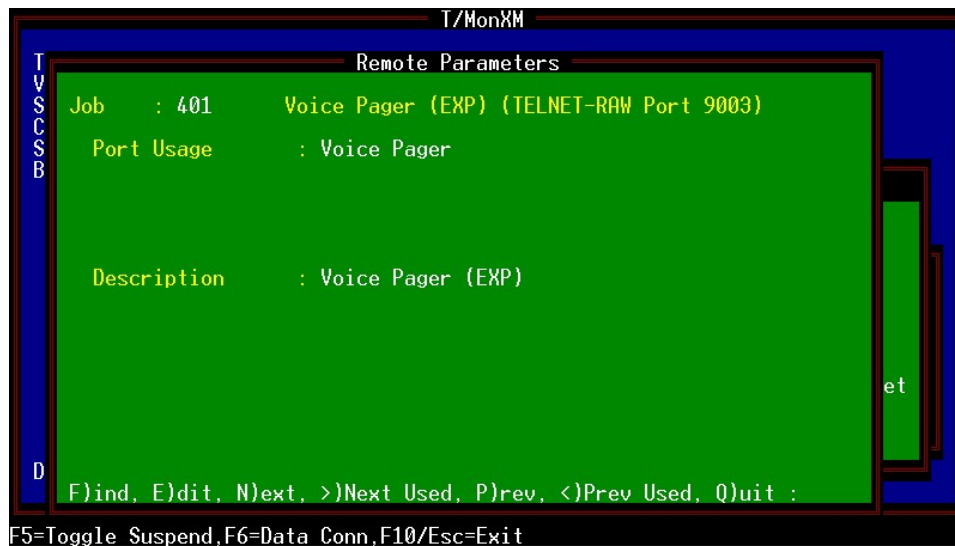


Figure 9a

1. On the Remote Parameters screen (accessed from Main menu > Parameters > Remote Ports), press F)ind to locate the next available job.
2. Press E)dit.
3. Press Tab and select Voice Pager from the submenu. (This is the job that “talks” to the T/Mon EXP.) Press Enter.
4. Enter a description (optional) and press Enter. You will see “No Data Connection” flashing at the top of the screen.
5. Press F6 to go to the Data Connection Assignment screen.
6. Press F1 to begin creating the assignment.
 - a. Type: TELNET-RAW
 - b. IP / Host Name: Enter in the IP Address of your T/Mon EXP.
 - c. TCP Port: 9003. (This is the default port.)
 - d. Description: Enter a description here, such as ‘Site Dialer EXP’.
 - e. Hit F8 to Save. You’ll now be back on the Data Connection Assignment screen.
7. Tab over to the new data connection you’ve just created and press Enter.

9.2 Step 2: Setup the Site Dialer RTU Job

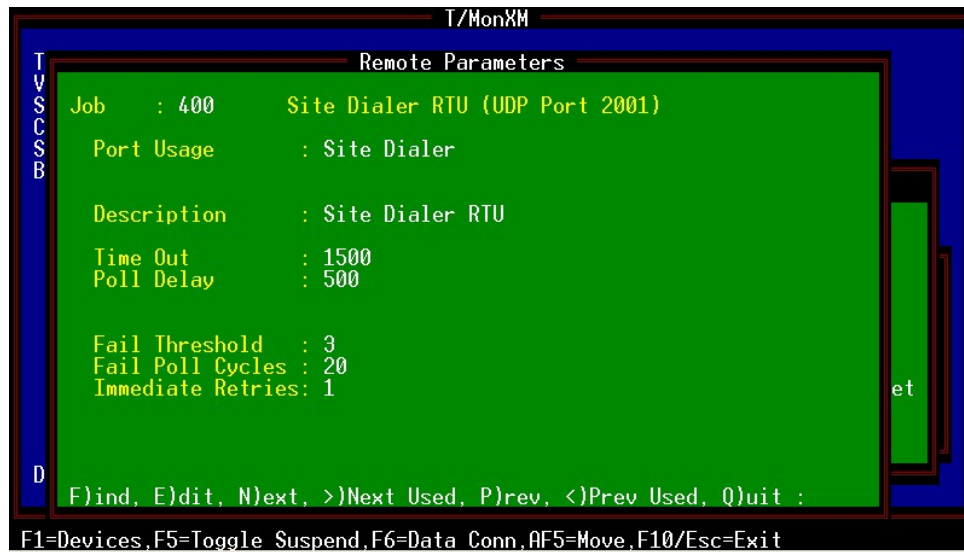


Figure 9b

1. On the Remote Parameters screen, press F)ind to locate the next available job.
2. Press Tab to select Site Dialer from the submenu, then press Enter. (This is the job that “talks” to the Site Dialer RTU.)
3. Description is optional. Press Enter to select all the defaults for Time Out, Poll Delay, Fail Threshold, Fail Poll Cycles, and Immediate Retries.
4. Press F6 to go to the Data Connection Assignment screen.
5. Press F1 to begin creating the assignment.
 - a. Type: UDP (DPS RTU, SNMP Trap Processing, SNMP Agent)
 - b. TCP Port: 2001 (This is the default. If you changed this on the RTU, enter the TCP Port # you’ve assigned to it.)
 - c. Description: Enter a description here, such as “Site Dialer RTU”.
 - d. Hit F8 to Save. You’ll now be back on the Data Connection Assignment screen.
6. Tab over to the new data connection you’ve just created and press Enter.

9.3 Step 3: Create the Site Dialer Device

The screenshot shows a terminal window titled "Remote Device Definition". The configuration is as follows:

```

Port / Job : 400      Site Dialer
Device ID  : 1        192.168.1.1 / 2001

Description : Site Dialer RTU
Site Name   : Fresno
Device Type : Site Dialer
Displays    : 1-9
Poll Type   : U
Refresh Rate : 291

Log Undefined: N
----- Address Defaults -----
Polarity    : B      Status      : A
Logging     : L      Reverse     : N
History     : H      Windows     : 
Level       : A      Message     : 0
Description : (Undefined)

F)ind, E)dit, D)delete, N)ext, P)rev, Q)uit : _
F1=Pts,F3=IntAlm,F5=ALG Prov,AF1=TL1,AF6=Templates,Esc=Ext
  
```

Figure 9c

1. Back on the Remote Parameters screen, press F1 to create the device.
2. Enter the Device ID. The default is 1, unless you've changed it in the RTU. (This is the DCP address of the RTU.)
3. At the bottom of the screen, you'll see the message: "This item is not in the database. Would you like to add it (Y/N)?" Press Y)es.
4. Enter in the IP address and port (default is 2001) of the Site Dialer RTU.
5. Description and Site Name are optional.
6. For Device Type, select Site Dialer. (This is the only option.)
7. Press Enter to select all the defaults for Displays, Poll Type and Refresh Rate.
8. Press Enter to select all the defaults under Address Defaults.

9.4 Step 4: Setup Pager Carriers

1. Go back to the main Master menu and choose Files.
2. Select Pager > Pager Carriers. This is where you add your operators, who get called when an alarm comes in.
3. Enter in the Int (Initials) and Name for your operators.
4. For Type, select V for Voice.
5. For Pager/Phone, enter the phone number to call.
6. The ID/Delay field should be filled in for added security. This is the ID you'll press on your phone to acknowledge an alarm. Example: If your ID is 123, you'll press 123# to ack an alarm from your phone. If you did not enter in an ID, you'll simply press # to ack.
7. Finish entering in all your operators and press F8 to Save.

9.5 Step 5: Define Voice Format

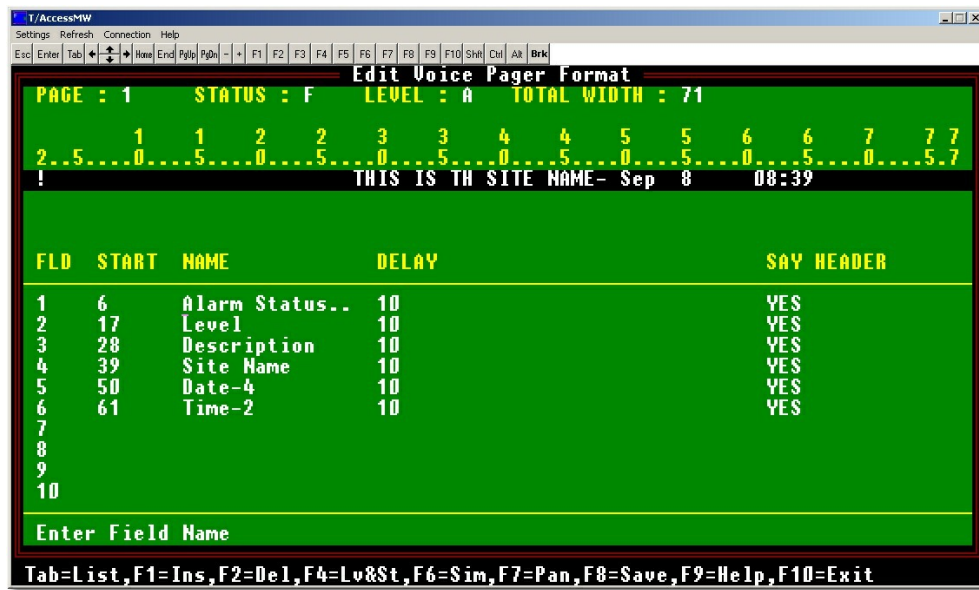


Figure 9d

1. From the Pager sub-menu, select Voice Format.
2. Define what T/Mon fields you;d like to include the spoken phrase.

10 Internal Alarms and Timers

The T/Mon EXP comes pre-databased with 4 internal (housekeeping) alarms:

1. Cannot communicate with TMon ASCII Gateway
2. Cannot connect TCP with TMon ASCII Gateway

The T/Mon EXP's default timers operate on a 1 minute check interval. There is no buffering in the EXP, so data will be lost during a switch.

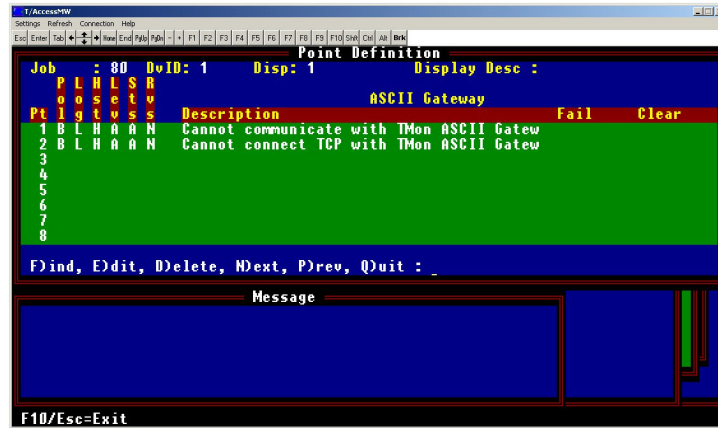


Figure 10a - T/Mon EXP's housekeeping alarms

You can also hit F6 for Performance Stats. Hit the (-) button until you see your ASCII gateway # in parentheses. You should see packets being received.

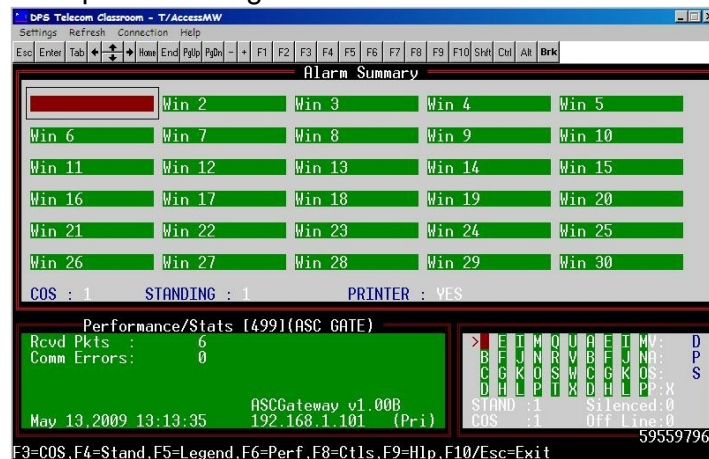


Figure 10b - Performance Stats

11 LCD Display



Figure 11a - T/Mon EXP Front Panel LCD

T/Mon EXP's front panel LCD display shows current software version and how many connections were created by the ASCII Gateway.

13 Technical Support

DPS Telecom products are backed by our courteous, friendly Technical Support representatives, who will give you the best in fast and accurate customer service. To help us help you better, please take the following steps before calling Technical Support:

1. Check the DPS Telecom website.

You will find answers to many common questions on the DPS Telecom website, at <http://www.dpstele.com/support/>. Look here first for a fast solution to your problem.

2. Prepare relevant information.

Having important information about your DPS Telecom product in hand when you call will greatly reduce the time it takes to answer your questions. If you do not have all of the information when you call, our Technical Support representatives can assist you in gathering it. Please write the information down for easy access. Please have your user manual and hardware serial number ready.

3. Have access to troubled equipment.

Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

4. Call during Customer Support hours.

Customer support hours are Monday through Friday, from 7 A.M. to 6 P.M., Pacific time. The DPS Telecom Technical Support phone number is **(559) 454-1600**.

Emergency Assistance: *Emergency assistance is available 24 hours a day, 7 days a week. For emergency assistance after hours, allow the phone to ring until it is answered with a paging message. You will be asked to enter your phone number. An on-call technical support representative will return your call as soon as possible.*

14 Gold Plan

Technical Support Policy
T/Mon Gold Plan Support Escalation Policy
(559) 454-1600 Phone
(559) 454-1688 Fax
support@dpstele.com Email

When you call DPS for T/Mon EXP support under your T/Mon Gold Plan maintenance agreement, you'll receive the following benefits:

1. If you call during normal DPS operating hours (7:00am to 6:00pm Pacific Standard Time), you will receive priority tech support in front of all calls from users without a T/Mon Gold Plan. If you have an emergency situation, your call will be prioritized to the top of the list (at uncommon times when there is a list).
2. If you call outside normal DPS operating hours with an emergency (ex. "System is Down"), you have access to 7x24x365 Tech Support. Follow the recorded voice instructions to alert the on-call technician. The on-call technician will typically return your call within 15 minutes.
3. With your permission, DPS technicians can remotely access your T/Mon from DPS Headquarters (typically via dialup) to facilitate diagnostics and instructions. You can follow along on your T/Mon screen as technicians control your T/Mon.
4. If it is determined that DPS hardware is at fault, one of the following will occur at DPS' discretion:
 - With client consent, DPS will, on a priority basis, expedite a replacement component for the client's qualified staff to install.
 - The client will ship the unit back to DPS for priority repair and return on a priority basis. When units are received by DPS before 12:00pm, they are repaired, tested, and shipped back to the client within one business day, provided there are no extenuating circumstances.
 - DPS will advance-replace the entire T/Mon unit. After receiving the new T/Mon, the client will ship the failed unit to DPS. The unit will be repaired and shipped back to the client. Upon receiving the repaired unit, the client will return the advance-replacement unit to DPS.

Other Resources:

T/Mon FAQ - Available 24 Hours/Day
Email Support
T/Mon DVD Training
Tuition-Free Factory Training

Support Staff:

Travis Mock
Chris Hower
Ron Stover

15 End User License Agreement

All Software and firmware used in, for, or in connection with the Product, parts, subsystems, or derivatives thereof, in whatever form, including, without limitation, source code, object code and microcode, including any computer programs and any documentation relating to or describing such Software is furnished to the End User only under a non-exclusive perpetual license solely for End User's use with the Product.

The Software may not be copied or modified, in whole or in part, for any purpose whatsoever. The Software may not be reverse engineered, compiled, or disassembled. No title to or ownership of the Software or any of its parts is transferred to the End User. Title to all patents, copyrights, trade secrets, and any other applicable rights shall remain with the DPS Telecom.

DPS Telecom's warranty and limitation on its liability for the Software is as described in the warranty information provided to End User in the Product Manual.

End User shall indemnify DPS Telecom and hold it harmless for and against any and all claims, damages, losses, costs, expenses, obligations, liabilities, fees and costs and all amounts paid in settlement of any claim, action or suit which may be asserted against DPS Telecom which arise out of or are related to the non-fulfillment of any covenant or obligation of End User in connection with this Agreement.

This Agreement shall be construed and enforced in accordance with the laws of the State of California, without regard to choice of law principles and excluding the provisions of the UN Convention on Contracts for the International Sale of Goods. Any dispute arising out of the Agreement shall be commenced and maintained only in Fresno County, California. In the event suit is brought or an attorney is retained by any party to this Agreement to seek interpretation or construction of any term or provision of this Agreement, to enforce the terms of this Agreement, to collect any money due, or to obtain any money damages or equitable relief for breach, the prevailing party shall be entitled to recover, in addition to any other available remedy, reimbursement for reasonable attorneys' fees, court costs, costs of investigation, and other related expenses.

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